Museum Bulletin
ALASKA STATE MUSEUM OFFICE OF MUSEUM SERVICES

Alaska State Museums Bulletin 70

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Contents:

Snapshot of Shipwreck Artifact Treatments

By Ellen Carrlee, Conservator, Alaska State Museums

1. Detail of a glass and copper alloy sash pin

You may have heard the Alaska State Museum is in the middle of designing exhibits for the new SLAM building…including some large new items such as a Baldwin electric locomotive and a Bristol Bay Double Ender. We are also busily packing the current exhibits and collections to move during a six-week window in spring of 2014 before our current building is torn down. The conservation section is now in temporary quarters at the State Office Building. You might not have heard that last fall the museum received over 1,000 wet artifacts from the salvage of a gold rush-era shipwreck. In addition to preparing for the museum's upcoming move, the conservation lab has been busy treating nearly 30 large totes of wet shipwreck material from the SS Islander. A Google search will yield the drama behind the recovery of gold that has been an ongoing saga since the wreck of the luxury steamship near Juneau on its way south from Skagway in 1901. Most of the publications about the Islander explore the exciting tale of gold recovery. However, it now seems the true treasure of the wreck may be in the hundreds of artifacts that illustrate the lives and times of the people who participated in the settlement and colonization of this part of the world. The materials unearthed from the wreck are in phenomenal condition. Salvage has yielded a range of materials such as clothing, leather work boots with their laces in place and iron tools in their original oiled canvas wrap as well as douchebags, an unopened bottle of ketchup and a child's rubber doll.

We are now in the final phases of conservation triage for these artifacts, with considerable help from grad student Madeleine Neiman of the UCLA/Getty conservation training program, pre-program conservation volunteer Lisa Imamura, and museum technician Bianca Carpeneti. Together we are tackling the first aid and drying of these items to allow for curatorial decisions to be made about the collection in its entirety at a later date. Here is a snapshot of the kinds of materials present and what our treatment decisions have been.

2. Rubber or gutta percha jointed doll

RUBBER AND PLASTIC

There have been many items in the wreck made of rubber or plastic, including this terrific jointed rubber doll. The conservation of this doll has been described here http://ellencarrlee.wordpress.com/2013/06/13/shipwreck-doll/

Other rubber items include boots, shoes, gaskets, hot water bottles, and personal hygiene items. The treatment for these items has generally been to desalinate (remove salts) and block them (hold in place until dry). Artifacts from seawater environments contain salts that should be removed to promote the long-term preservation of the object. In the case of rubbers and plastics (which are poorly researched in the conservation literature) it seems that repeated soakings in fresh water until the conductivity reading is close to tap water is adequate. Care must be taken not to scratch the surfaces while cleaning.

3. Full glass bottle of ketchup

GLASS

Wine bottles, whiskey bottles, soda bottles, perfume bottles, inkwells, porthole glass, and various kinds of decorative glass have been recovered. Salts are not a large problem with glass that is in good condition. We have seen several bottles with their original contents, including the ketchup bottle pictured here. We removed the ketchup, which is currently in the conservation lab fridge. It looked, smelled and poured exactly as you would expect from fresh ketchup. Most likely, it is a brand called Blue Label.

4. Holding the joins together while they set: ceramic thunder mug

CERAMICS

Conservation intern Madeleine Neiman explains our worry with ceramics: "Ceramics are among the most common and abundant artifact removed from historic wrecks including the Islander. Here our primary concern is salts. Salts may be broken down into categories: insoluble and soluble. Insoluble salts are typically found as hard surface accretions or stubborn staining. While they may be aesthetically undesirable, their presence is largely innocuous; they will not compromise the long-term integrity of the object. Soluble salts, conversely, may cause significant damage. At the time of excavation, porous ceramic artifacts recovered from marine sites are impregnated with sea water which may include a range of soluble salts (including various phosphates, nitrates and chlorides). When allowed dry untreated, these salts crystalize within the pores of the ceramic exerting tremendous pressure on surrounding material causing it to fracture and crumble. As soluble salt are hygroscopic, ongoing fluctuations in ambient humidity will cause continuing cycles of deliquescence (dissolution) and efflorescence (crystallization) compounding the initial damage. To combat this problem, soluble salts are removed through repeated rinsing prior to drying. Ceramic objects are placed into large tubs filled with water which are regularly changed. Conservators monitor progress with a conductivity meter, a device which measures the concentration of ions present within the water. When conductivity remains low and constant over the course of successive water changes, the object can be safely removed from the water and allowed to dry."

Among the many steamship dishes, the fragments of a "thunder mug" (chamber pot) were found. The vessel was reconstructed by Lisa Imamura. After soaking to desalinate, the break edges were consolidated with dilute Acryloid B-72, then joined with a thicker B-72 solution, held in place overnight with blue painter's tape to keep all the joins properly aligned during drying.

5. Copper alloys including luggage tags and some of the letters that spell "ISLANDER"

6. Museum technician Bianca Carpeneti consolidating the putty fill behind a copper alloy letter "S"

COPPER ALLOYS

Brass, bronze, German silver and other alloys of copper account for several hundred items salvaged from the wreck. These items include jewelry, silverware, lamp parts, tools, hinges and architectural elements. Salt from the marine environment can bond into the structure of copper and its alloys, making it difficult to remove by passive soaking alone. Chloride salts in particular can cause damaging cyclic corrosion known as bronze disease. Standard treatments for forcing chloride salts out of copper alloys include electrolysis and soaking in sodium sesquicarbonate. Both of these measures were recently used on different portholes from the Torrent in the Alaska State Museum collection. Testing on the copper alloys from the Islander wreck indicate that extensive

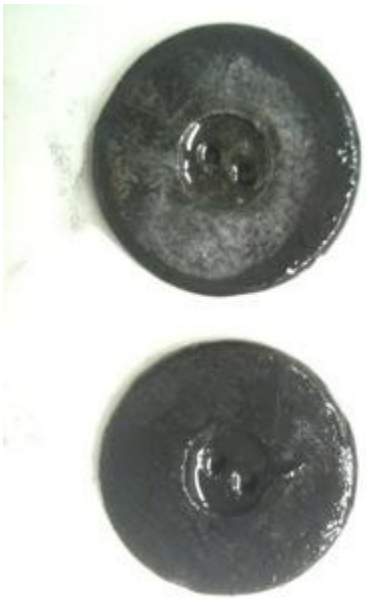
soaking seems to drive out enough chlorides to avoid chemical or electrolytic treatment, suggesting that the chemistry and context of the wreck site may have fortuitously resulted in low chloride contamination. We cleaned and soaked several grommets and small screws, dried them, and then subjected them to a high humidity chamber for several weeks to try to force bronze disease. Our "test victims" still look fine.

7. Iron tools and pulleys soaking in sodium carbonate passivation solution

8. Pre-program conservation volunteer Lisa Imamura preparing iron for treatment

IRON

Iron has an even greater problem with chlorides and other salts, and there is no sure way to prevent the horrible, disfiguring rusty flaking of iron that exhibits active corrosion. Unfortunately, we have a huge number of iron items from the wreck, including tools, chains, and pulleys. When we first saw these, they were blackish on the surface, but soon showed bright orange powdery "flash rusting" in their soaking tubs. To buy ourselves time, we filled the tubs with an alkaline passivation solution of 5% sodium carbonate. The literature suggests 5% sodium hydroxide might work better, but we were unwilling to make large baths of caustic solutions without a properly equipped conservation lab. To our delight, the iron all continues to look good in these solutions. Usually, this is a stopgap measure until the "real" treatment can happen, but we dared hope: if the chloride contamination is low enough that we didn't need to take chemical measures with our copper, could we do the same with the iron? Might successive baths of alkaline passivation soak out enough of the chlorides? Again we tested some victims…a few small bolts that had been soaked for several months in changes of the passivation solution. We also tried a supplementary tannic acid treatment. Interestingly, the iron that got tannic acid treatment burst out in pustules of active and aggressive corrosion, while the soaked samples fared better than the untreated control samples. Several dozen iron tools with wooden handles were among the items treated. We are also evaluating the possibility of low RH storage, perhaps in sealed tubs with silica gel to keep the humidity near the iron as low as possible.



9. Two wet lead sash weights

LEAD

Some metals do not hold onto salts in the way that copper and iron can. Lead artifacts, for example, tend to dry well without extensive desalination, and soaking in freshwater can actually promote some kinds of corrosion. The lead buttons pictured here are most likely "sash weights" or "hem weights" sewn into the bottom of a garment or curtain to insure proper draping.

10. Sharpening stone

STONE

A few stone items have been recovered, mainly architectural elements like countertop fragments, but also sharpening stones such as the one pictured above.

11. Part of a woodworker's plane stamped with the name "T. Rogers"

WOOD

Waterlogged wood is often highly degraded, and air drying without an impregnant often results in severe cracking, warping, and distortion of the wood. The details of this process are described here:

http://ellencarrlee.wordpress.com/2009/04/04/waterlogged-wood-deterioration/

The standard treatment for waterlogged wood is impregnation with polyethylene glycol, a water soluble wax whose use is described here:

http://ellencarrlee.wordpress.com/2009/04/08/what-do-we-know-about-peg/

However, with a few exceptions, the wood from this shipwreck was fairly robust. Several items had extensive boreholes from sea worms, but the majority of the items were in good condition and were successfully air dried after desalination. One of the exciting discoveries was the stamp "T. Rogers" on many of the tool handles. Sadly, he died in the wreck. Information about him is in a Canadian archive, and connecting his story to these items is an example of the kind of work that is yet to happen on this collection, as Rogers is not the only individual whose name is written on artifacts.

12. Leather shoes during treatment. One of them is being stuffed out with rolled cotton towels and wrapped with gauze to prevent distortion while drying.

LEATHER

Most of the leather artifacts from the wreck are shoes and belts, but there have also been two sail maker's palms (think of a thimble for the hand), the partial covering from a chest, and a wallet. Some items include metal elements such as buckles and nails. Many luggage tags made of copper alloy have leather straps. Conservation intern Madeleine Neiman describes the major concerns with waterlogged leather:

"Animal hide is comprised a network of collagen fibres; chains of amino acids which are spiraled together to form fibrils that, in turn, bundle together to form fibres. During the tanning process, crosslinkages are created in the fibre structure allowing the hide to retain flexibility as well as resistance to deterioration. In a waterlogged environment the tanned hide (aka leather) swells and fibres disperse. Additionally, a variety of chemical reactions occur breaking both intra- and inter-molecular bonds and leading to depolymerization of the protein. Tanning agents and lubricants applied to the surface of the leather during its period of use to make it supple and flexible are leached out. When allowed to dry "naturally," waterlogged leather is overwhelmed by contractile forces; the surface tension of evaporating water pulls together the decayed collagen fibres. This process causes the leather shrink, stiffen, crack and embrittle. For this reason, objects are often impregnated PEG. The PRG acts as a bulking agent during drying as well as serving as a lubricant and humectant afterward; it aids the object in maintaining in its original form and lends greater strength and flexibility allowing the leather to withstand gentle handling."

Iron contamination of leather can also contribute to the breakdown of the leather, as can excessive contamination with salt. However, just soaking and drying leather can lead to excessive shrinkage and darkening. Soaking in chemicals meant to drive out the iron can also potentially drive out the tanning agents of the leather. PEG treatment of leather is sometimes done, but PEG is known to corrode metals. While we have tested several different cleaning methods and ways to preserve the leather, none are fully satisfactory. Most of the results have been adequate to save the leather in exhibit-worthy condition, but only a few leather items meet all our wish-list criteria: natural colored, unshrunken, no cracks or tears, supple and flexible, robust, etc. Most are a bit dark and rather stiff. Still, it is wonderful to have these items survive at all.

13. Wool clothing set out for drying the month before the conservation lab moved out of the museum

TEXTILES/PAPER

While the leather has been a wild card, the textiles have been wonderful. Most of them seem to be wool, and the stitching had disintegrated in many cases, leaving our jackets, pants, vests and linings in multiple pieces. Or could there have been a tailor shop? So

much more to investigate…are these garments all the same size? Why do we see thread in some places but not others? What could our collection of brushes from the wreck tell us? Some of the hairbrushes and paintbrushes have bristles, while others just have holes. If it were simply a matter of proteinaceous wool versus vegetative cotton, we would perhaps not expect to see the wood and basketry items in such good shape. And did I mention we also have some paper scraps? The textiles are a glorious group, and aside from the dressy coats and vests and even a tuxedo, we also have socks, knitted boot liners, gloves, and what seem to be remnants of upholstery.

14. UCLA/ Getty graduate conservation student Madeleine Neiman painstakingly picks fragments of a paper label out of the bath containing rolls of painted wall coverings

15. Detail of yellow paint and floral design on cloth wall coverings

COMPLEX COMPOSITES

The most challenging artifacts have been those that are made of many very different materials. For example, a box full of tools and garments adhered together by a very tough iron-rich black petroleum distillate of some kind. Or the tool roll of greased drill bits, each in its own pocket of an incredibly oily canvas cloth. The cloth is brittle, but the

iron cannot stay inside the roll without treatment or it would rust away before anyone could study it. Most challenging of all, however, are the two rolls of what the 1902 Sears catalog tells me are probably cloth wall coverings. Dozens of feet of floral printed cloth, and the paint comes off easily on a cotton swab. How to preserve these? I guess you will have to stay tuned to hear how that story ends.

As we work through the final tubs of iron, our triage will conclude. As part of the decision-making process, conservation grad student Madeleine Neiman undertook a grueling literature search and wrote summaries of the standard treatment option for maritime copper, iron, and leather. Conservation of these materials is commonly undertaken by non-conservation professionals and the results are published only sporadically. The treatment results of our efforts and our decision logic ought to be fully documented and published to contribute to that global body of knowledge. But first, we have a museum to move and new exhibits to design and install! One day, I hope the Alaska State Museum will be able to coordinate an exhibition of SS Islander artifacts to bear witness to the lives of the miners, sailors, entertainers, children, carpenters, and others within the context of daily life during the gold rush in this part of the world.

Ask ASM

This question came from someone working at an archive who was putting some material on public display for the first time.

Question: We are getting ready to put together an exhibit case and in doing so, we have a couple questions. First, there is an old press book, from which there are a couple letters that we're having copied for the case that we would like to display. It has a hard-bound cover, which protects the pages. Would there be any harm in displaying it in the case (like an artifact)…to represent authenticity, if nothing else? I am open to playing with the lights (or at least the light exposure) so that they're not on all the time over the case.

ASM: What is the cover made of?

Questioner: Like a finely woven textile-ish fabric that's covering a hard book board, both front and back. It has a title that's hand-written in black ink on the cover, along with a small, less significant label with writing on it in pencil. Overall it's in good shape; not visually falling apart.

ASM: Is the textile colored? Fading of the dye is the big risk, but the textile will face some deterioration at the light levels present. Not outlandish considering it's a the book, and the deterioration might be in an OK level for what it is, although if the cover is colored, red or blue in particular, you are likely to end the exhibit with one side of the cover that is lighter than the other….

Questioner: No, it's not colored. It's a drabby, neutral color.

ASM: Probably an acceptable level of risk then…

Questioner: Meaning….it's OK or not OK to put in the case?

ASM: Meaning, you will get some level of deterioration to the textile fibers, which will be weakened to some small degree by that light exposure, but not likely much deterioration to the paper or to the color of the cover. In the museum field, the light level you have for that exhibit case would probably be too high for the museum to put it in long-term if it were an object in our collection, but as an archive you may have a different set of criteria for preservation/exhibition. There is also the possibility that in the museum, the curator and other staff might say that the importance of exhibiting a particular book would outweigh the potential for minor increased deterioration. I can tell you want will happen, and what the museum would likely do, but whether to put it in or not isn't my final decision. Exhibiting original collections materials is always a balance of pros and cons.

Shaking the Money Tree

AAM

Deadline: December 1

Website: http://www.aam-us.org/resources/assessment-programs/MAP

The Museum Assessment Program (MAP) helps small and mid-sized museums strengthen operations, plan for the future and meet national standards through self-study and a site visit from a peer reviewer. IMLS-funded MAP grants are non-competitive and provide $4,000 of consultative resources and services to participating museums.

MAP provides guidance and growth in the following areas:

prioritization of goals

focus on mission and planning

communications between staff, board and other constituents

credibility with potential funders and donors

The program offers four assessments:

Organizational

Collections Stewardship

Community Engagement

Leadership (full cost only)

Each assessment can be completed in less than a year. Costs to participate range from free to $750. Please contact MAP staff to be added to a notification list for when the next application is available.

MAP is supported through a cooperative agreement between the Institute of Museum and Library Services and the Alliance.

IMLS

The Institute of Museum and Library Services (IMLS) is accepting applications in each of its museum grant programs. The application deadline for each of these programs is December 2, 2013**.**

For more information about these funding opportunities, including program guidelines, contacts, and webinar access information, click on one of the following links.

- **Museum Grants for African American History and Culture**
- **Museums for America**
- **National Leadership Grants for Museums**
- **Native American/Native Hawaiian Museum Services Program**
- **Sparks! Ignition Grants for Museums**

IMLS staff members are available by phone and email to discuss general issues relating to these funding programs. http://www.imls.gov/

NEH

Sustaining Cultural Heritage

The next grant deadline is December 12, 2013.

The National Endowment for the Humanities invites applications from nonprofit museums, libraries, archives, and educational institutions in the United States to its Sustaining Cultural Heritage Collections program. This grant program encourages cultural institutions to plan and implement preventive conservation projects that pragmatically balance preservation goals, cost, and environmental impact. Projects should be designed to be as cost effective, energy efficient, and environmentally sensitive as possible, and they should aim to mitigate the greatest risks to collections rather than to meet prescriptive targets.

Planning grants of up to $40,000 (with an option to request an additional $10,000 to implement a recommendation made by the planning team) are available to bring together interdisciplinary teams that will work collaboratively to identify sustainable preventive conservation strategies. Planning teams should consider the nature of the materials in a collection; the performance of the building, its envelope, and its systems in moderating internal environmental conditions; the capabilities of the institution; the nature of the local climate and the effects of climate change; the cost-effectiveness and energy efficiency of various approaches to preventive conservation; and the project's impact on the environment.

Implementation grants of up to $350,000 are available to manage interior relative humidity and temperature by passive methods; install heating, ventilating, and air conditioning systems; install storage systems and rehouse collections; improve security and the protection of collections from fire, flood, and other disasters; and upgrade lighting systems and controls to achieve levels suitable for collections that are energy efficient.

With Sustaining Cultural Heritage Collections grants, cultural institutions are

* reevaluating specifications for relative humidity and temperature and establishing realistic and achievable targets;

* identifying passive (non-mechanical) strategies for creating more stable collection environments;

* investigating how the environmental management features of historic buildings might be used, especially those related to ventilation and control of solar gain;

* studying the natural variations in a building to identify spaces best suited for collections;

* employing the concept of multiple layers of buffering to create more stable conditions for collections;

* reorganizing collections by material type, locating more vulnerable collections in spaces that are more naturally stable;

* considering how docent-led tours might be re-routed to minimize the introduction of unconditioned air;

* repairing building envelopes and improving site drainage to prevent moisture infiltration;

* evaluating mechanical systems and optimizing their performance;

* exploring control strategies and programming of building automation systems for operating HVAC systems more efficiently;

* adopting, when possible, simple and easy to maintain mechanical systems and controls;

* designing mechanical systems that are "right sized;"

* implementing managed setbacks and shutdowns of climate control systems in well insulated spaces; and,

* installing energy efficient lighting and employing occupancy sensors for control in storage spaces and galleries.

Guidelines, FAQs, and sample narratives from successful applications are on the NEH Web site: www.neh.gov/grants/preservation/sustaining-cultural-heritage-collections.

A list of previous awards can be found here: www.neh.gov/files/divisions/preservation/sustaining_cultural_heritage_collections_awards.pdf

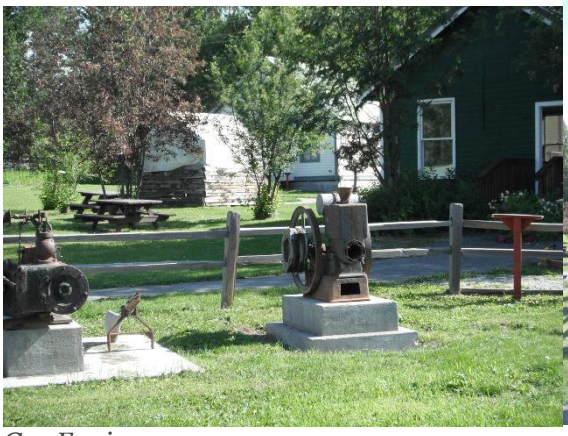
Program officers are available to discuss project ideas and read draft proposals. Please contact the division for more information by emailing preservation@neh.gov or calling 202-606-8570.

Spotlight on Grant in Aid

Alpine Historical Society

The project of placing 1918-1967 outdoor coal mining equipment on cement foundations at the Alpine Historical Park in Sutton, AK began with a FY 2010 Alaska State Museum

mini grant. David Harvey, objects conservator, visited the park in August 2009 and assessed 19 pieces of equipment that were moved to the park from nearby closed coal mines in1989. Most of them were placed on the ground or on railroad ties and were slowly sinking into the ground and growing lichen on them. Mr. Harvey gave the Alpine Historical Society (AHS) a thorough report on each piece of equipment's condition and how we might prevent further deterioration. In 2010 we removed three large cottonwood trees that were contributing to the moisture and lichen growth around the equipment. The remaining large stumps and roots were removed in 2012. A FY 2011 Alaska State Museums mini grant was awarded to place three pieces of coal mining equipment on foundations with pedestals with the majority of mining equipment collection. A FY 2012 Alaska State museums mini grant was awarded to place two large Boilers on platforms near the Coal Washery separate from the general equipment display. Bird nests, lichen and asbestos were previously removed from the Boilers. The remaining five large pieces of coal mining equipment were placed on cement foundations and pedestals when AHS was awarded a large FY 2013 Alaska State Museums grant.



Gas Engine

Air Shovel

Eska Dryer

Hoist

Air Circulator

The whole exhibit looks terrific. We have had a number of Park visitors comment how well the equipment is displayed, and it is an important attraction to the community from the newly established Sutton Community Library/Resource Center which shares the Park's parking lot.

Alaska Museums in the News

Campaign kicks off to honor Alaska Native actor Ray Mala

http://www.newsminer.com/news/alaska_news/campaign-kicks-off-to-honor-alaska-native-actor-ray-mala/article_e7728a9a-4a42-11e3-8f79-0019bb30f31a.html

Professional Development/Training Opportunities

Free webinars from the California Preservation Program and Infopeople!

This series of four webinars will provide participants with an overview of the preservation standards for the many aspects of collections care, will give benchmarks for measuring and improving preservation within an organization, and give guidelines for establishing a preservation program.

Webinar 1: **Preservation Best Practices: Fundamentals and Facilities**

Presenter: Laura Hortz Stanton

Date: Thursday, November 21st, 2013

Start Time: 11 am AKST

The first in this series will cover basic preservation and collections care concepts and will give participants an introduction to establishing a preservation program within their institution. In addition, this session will discuss the role that facilities, security, and housekeeping have in the long-term preservation of collections.

Intended Audience: This webinar will be of interest to librarians, archivists, collections managers, curators, and other staff members involved in collections care who must manage a variety of tasks, including implementation of collections management plans and policies, management of environmental controls and storage conditions, and provision for safe use and exhibition of collections.

Other Webinars in the Series:

Webinar 2: The Role of Environment in Collections Care: Temperature & RH, Lighting, and Pest Management, Thursday, December 5, 2013, 11 am AKST

Webinar 3: Collections Care: Handling, Access, Storage, and Exhibition, Thursday, December 12, 2013 11 am AKST

Webinar 4: Planning and Prioritizing: Tools for Success, Thursday, December 19, 2013 11 am AKST

This series is sponsored by the California Preservation Program, a project of the California State Library, supported in part by the U.S. Institute of Museum and Library Services under the provisions of the Library Services and Technology Act, administered in California by the State Librarian. For more information and to participate in the webinars, click on the links above.

Webinars are free of charge, you can pre-register by clicking on the Join Webinar button now or go directly to the webinar by clicking on Join Webinar within 30 minutes of the start of the event. If you pre-registered you will receive an email with login link and a reminder email the day before the event. If you did not preregister and you can register in the 30 minutes prior to the event and directly enter.

If you are unable to attend the live event, you can access the archived version the day following the webinar. Check our archive listing at: http://infopeople.org/training/view/webinar/archived

C2C Webinar

Conservation Assessment Program

December 10, 2013, 10:00 am – 11:00 am AKST

Join us for an informative webinar about the Conservation Assessment Program application and participation! CAP helps small to mid-sized museums secure a general assessment of their collections and historic structures. A CAP assessment is a great first step in prioritizing your museum's collections care needs, and a wonderful building block to go on to secure more targeted funding. The CAP staff will cover the basics of eligibility requirements, the application, and CAP participation. Check out the sample CAP application (http://heritagepreservation.org/CAP/docs/SampleApp2013.pdf) and bring your questions!

To join go to http://www.connectingtocollections.org/meeting/

Professional Time Wasting on the Web

At Historic Homes, Unearthing a Deeper View of Slavery

http://www.nytimes.com/2013/10/27/arts/artsspecial/at-historic-homes-unearthing-a-deeper-view-of-slavery.html?emc=eta1&_r=0

Charles Edenshaw Exhibit at the Vancouver Art Gallery

http://projects.vanartgallery.bc.ca/edenshaw/

History Matters, Students Matter. Public Engagement Matters

http://vimeo.com/76743251

Cool website on learning through objects

http://www.objectlessons.org/

Refuse to Fold

http://engagingplaces.net/2013/11/14/video-refuse-to-fold-heritage-tourism-in-the-mississippi-delta/

Off with their Heads? Matchbooks in Archives

http://siarchives.si.edu/blog/their-heads-matchbooks-archives

The Greatest Wild West Poster Ever Told

http://www.youtube.com/watch?v=N9nFpsqSMpU&feature=em-share_video_user